

HAND OUT TEORI GRAF

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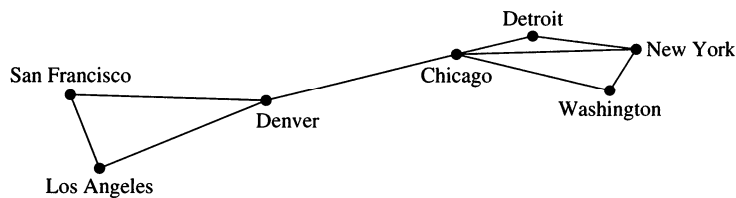
PERTEMUAN 1. GRAF

1. Definisi Graf Menurut rosen adalah

DEFINITION 1 A graph $G = (V, E)$ consists of V , a nonempty set of *vertices* (or *nodes*) and E , a set of *edges*. Each edge has either one or two vertices associated with it, called its *endpoints*. An edge is said to *connect* its endpoints.

Contoh Aplikasi Graf:

Model graf untuk kota – kota yang ada di USA. Simpul menyatakan kota dan sisi menyatakan jalan yang menghubungkan langsung.

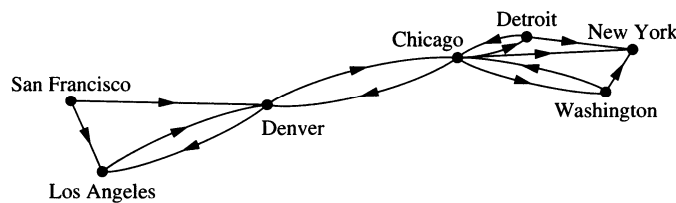


Graf 1. Kota - kota di USA

2. GRAF BERARAH

Definisi graf berarah menurut rosen

A *directed graph* (or *digraph*) (V, E) consists of a nonempty set of vertices V and a set of *directed edges* (or *arcs*) E . Each directed edge is associated with an ordered pair of vertices. The directed edge associated with the ordered pair (u, v) is said to *start* at u and *end* at v .



Graf 2. Contoh graf berarah kota-kota di USA

3. Beberapa Jenis Graf

a. Graf Lengkap

Menurut rosen

Complete Graphs The **complete graph on n vertices**, denoted by K_n , is the simple graph that contains exactly one edge between each pair of distinct vertices. The graphs K_n , for $n = 1, 2, 3, 4, 5, 6$, are displayed in Figure 3. ◀

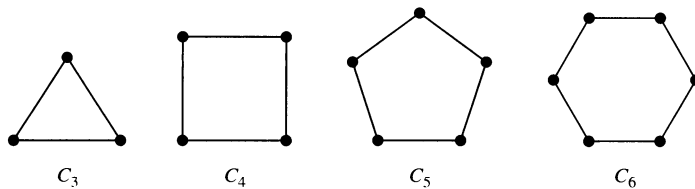
b. Graf Cycle

Menurut Rosen

Cycles The **cycle C_n** , $n \geq 3$, consists of n vertices v_1, v_2, \dots, v_n and edges $\{v_1, v_2\}, \{v_2, v_3\}, \dots, \{v_{n-1}, v_n\}$, and $\{v_n, v_1\}$. The cycles C_3, C_4, C_5 , and C_6 are displayed in Figure 4. ◀

c. Graf Wheels

Wheels We obtain the **wheel W_n** when we add an additional vertex to the cycle C_n , for $n \geq 3$, and connect this new vertex to each of the n vertices in C_n , by new edges. The wheels W_3, W_4, W_5 , and W_6 are displayed in Figure 5. ◀



d. **FIGURE 4** The Cycles C_3, C_4, C_5 , and C_6 .